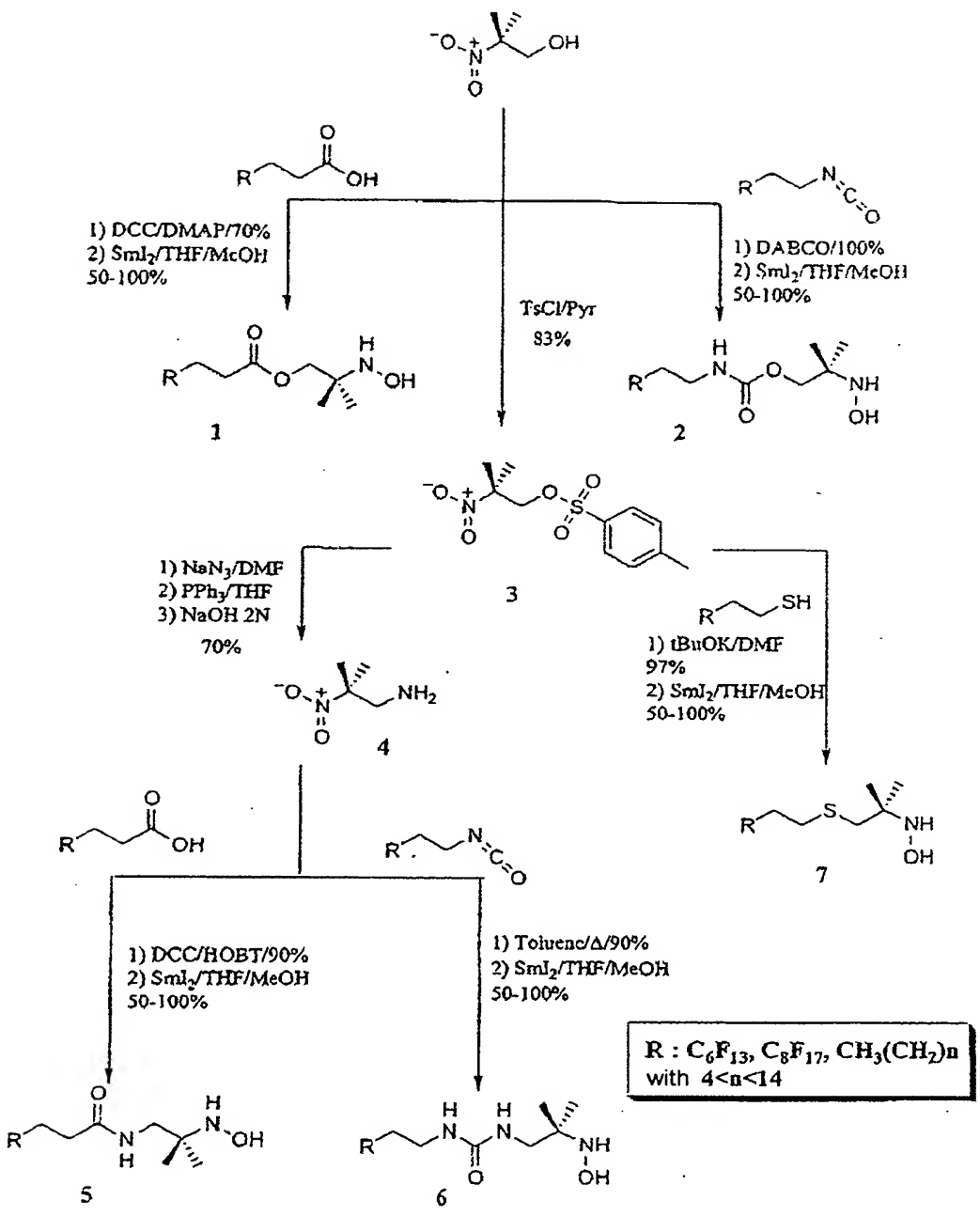

Figure 1: Synthesizing the hydrophobic monocatenary hydrocarbon and perfluorocarbon moieties

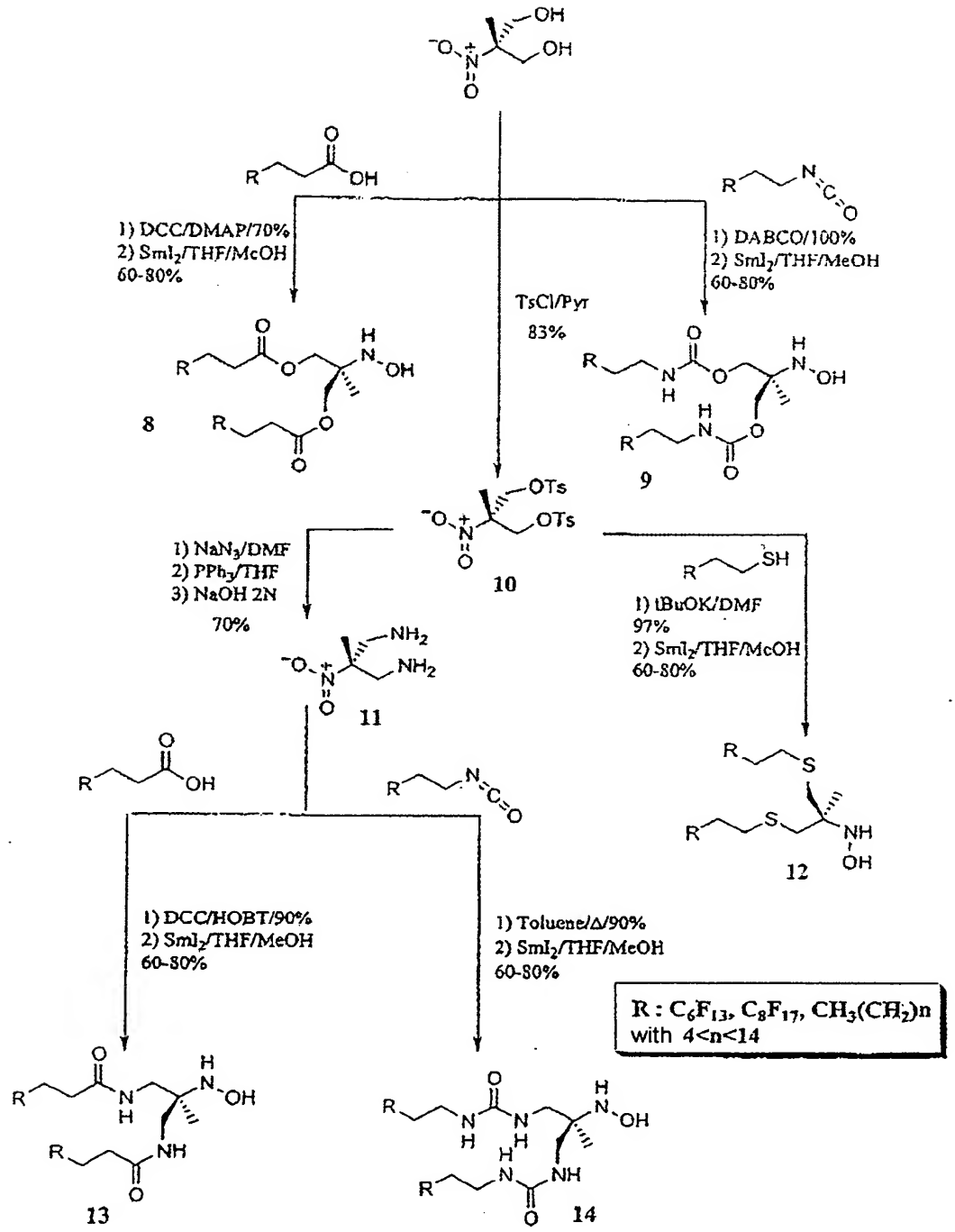

Figure 2: Synthesizing the hydrophobic bicatenary hydrocarbon and perfluorocarbon moieties

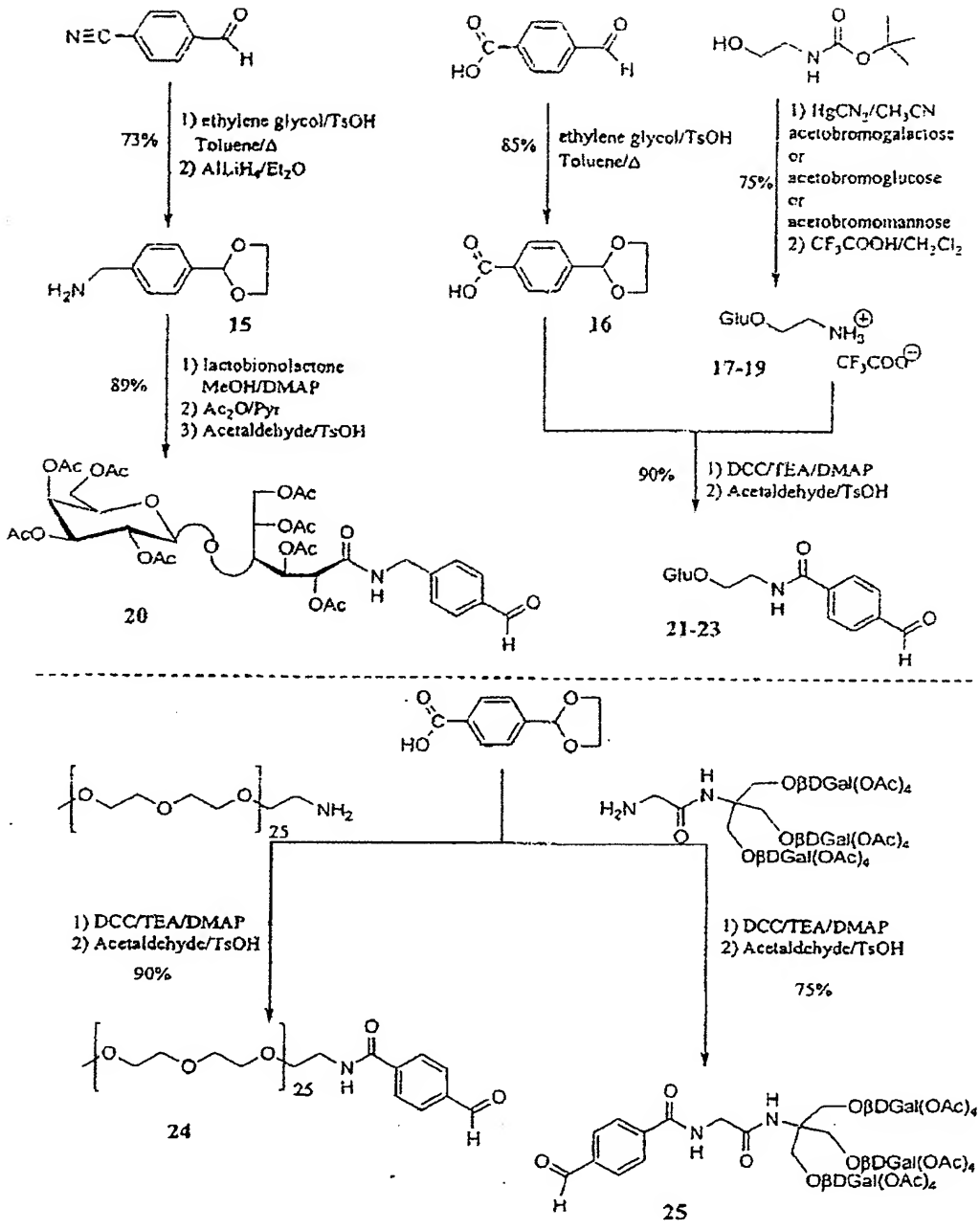

Figure 3: Synthesizing the nonionic polar heads

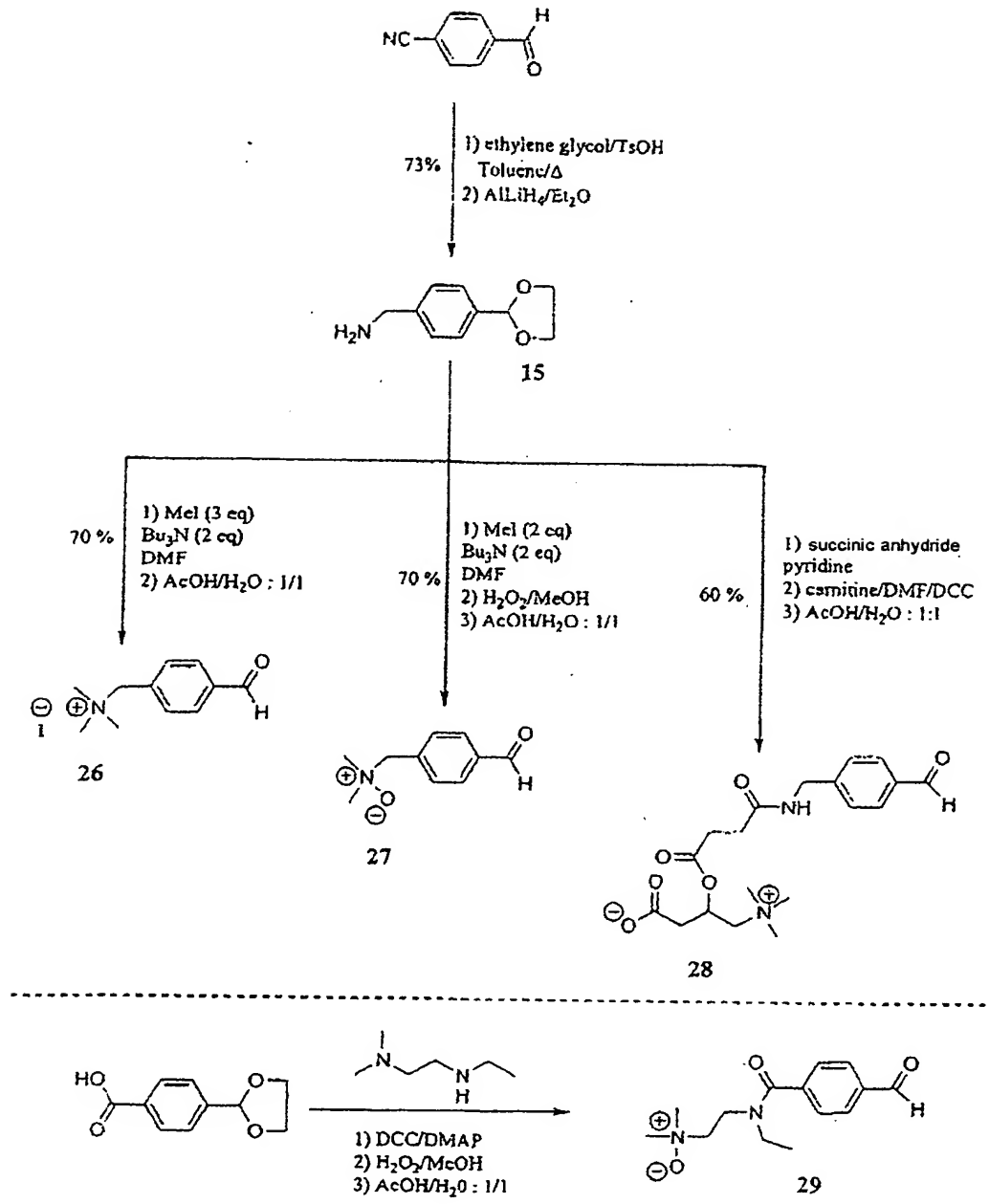

Figure 4: Synthesizing the ionic polar heads

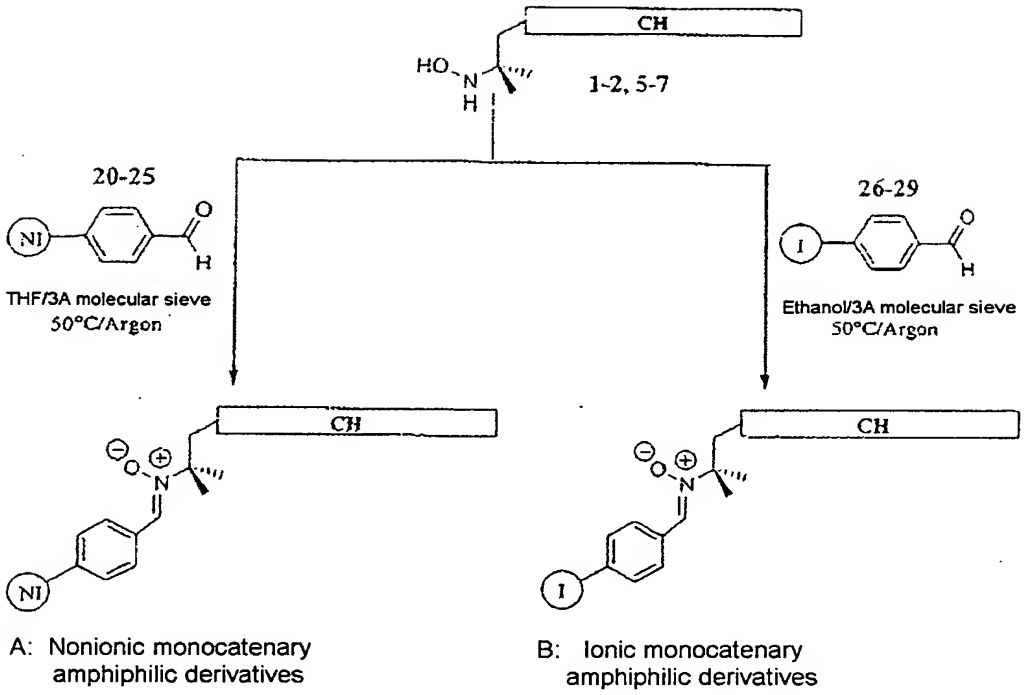

Figure 5: Synthesizing the monocatenary amphiphilic nitrones **A-B**

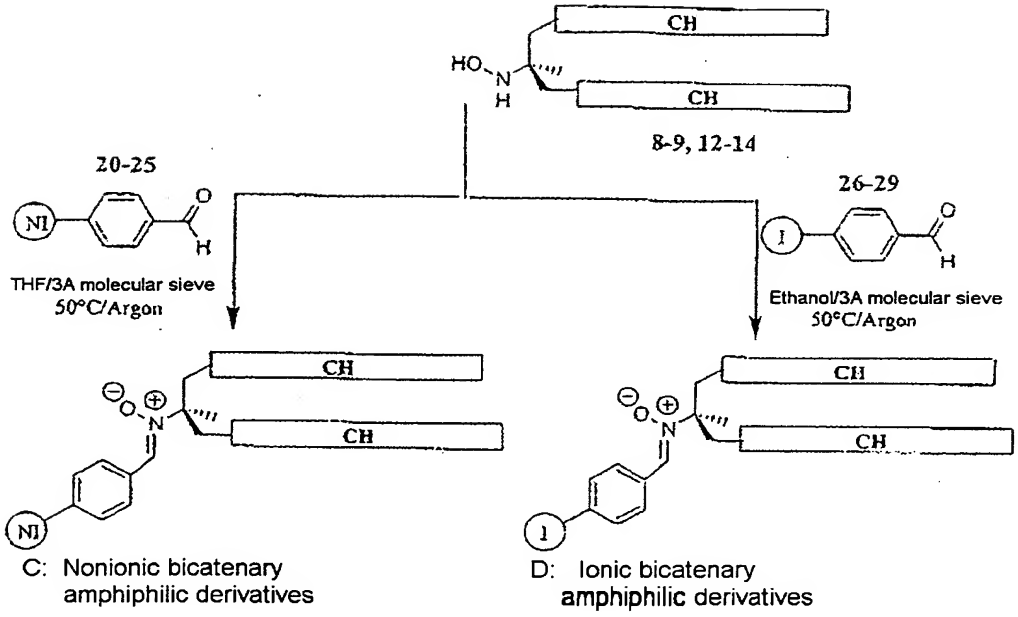

Figure 6: Synthesizing the bicatenary amphiphilic nitrones **C-D**

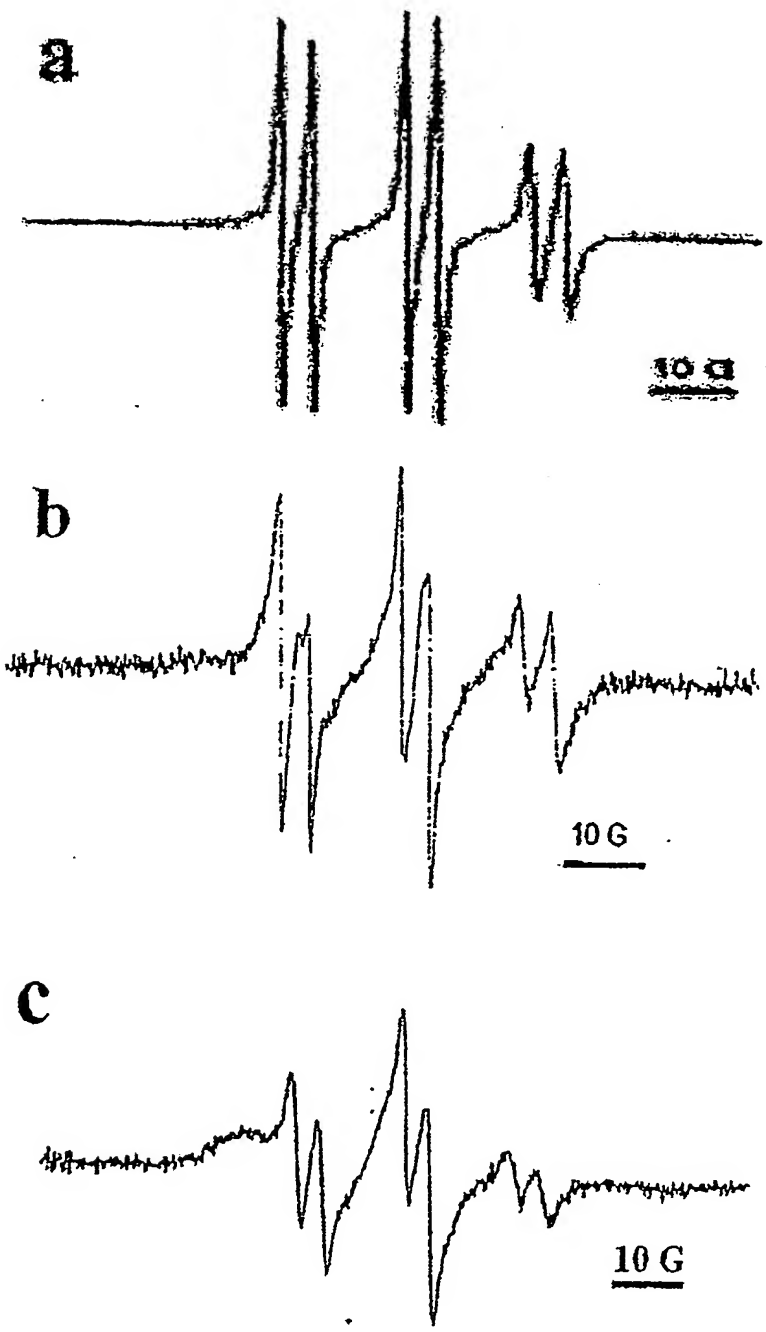

Figure 7: EPR spectra of the carboxylate (a), hydroxyl (b) and methyl (c) adducts which are respectively generated by the Fenton reaction (b) in the presence of formate (a) and of DMSO (c) and of the compound $\mathbf{A_1}$

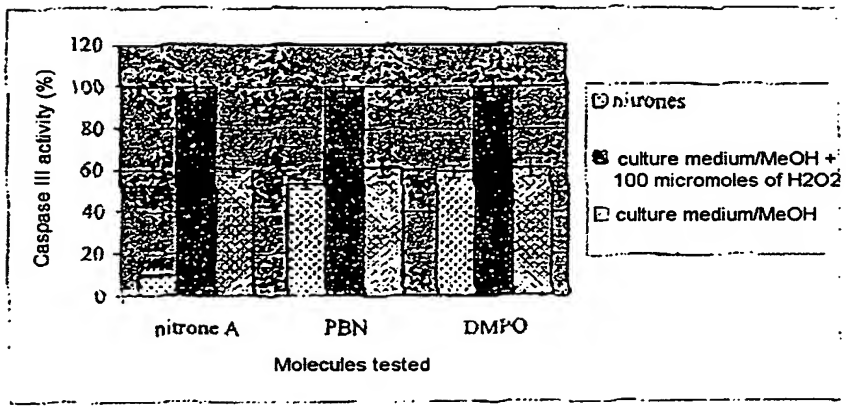

Figure 8: Caspase III activity of neuronal cells which have been poisoned with H_2O_2 and treated with commercial nitrones and the type **A2** nitrone

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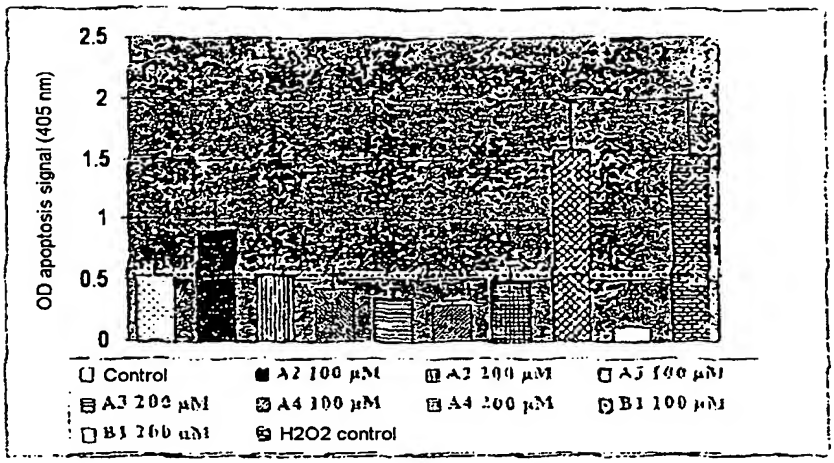

Figure 9: Measuring the state of apoptosis by means of an ELISA assay of the fragmentation of the DNA following lysis of the cells

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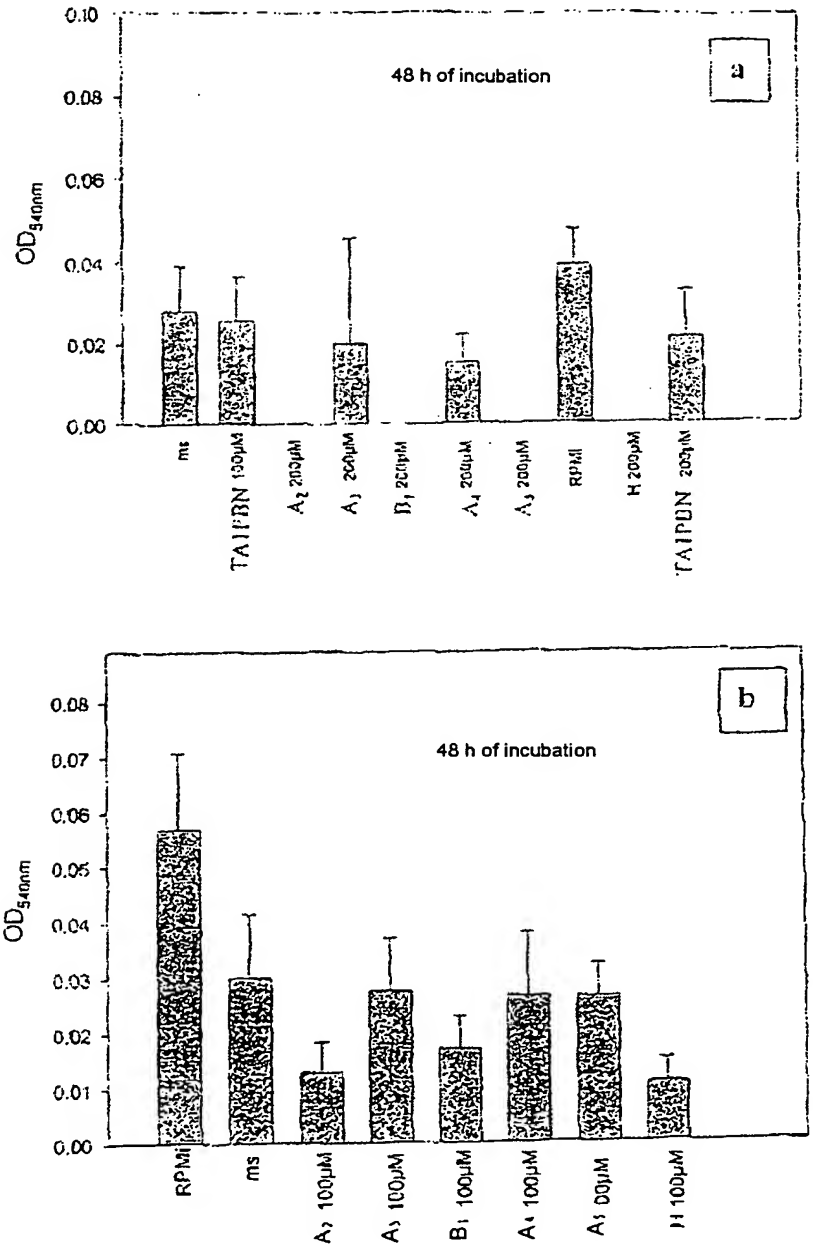
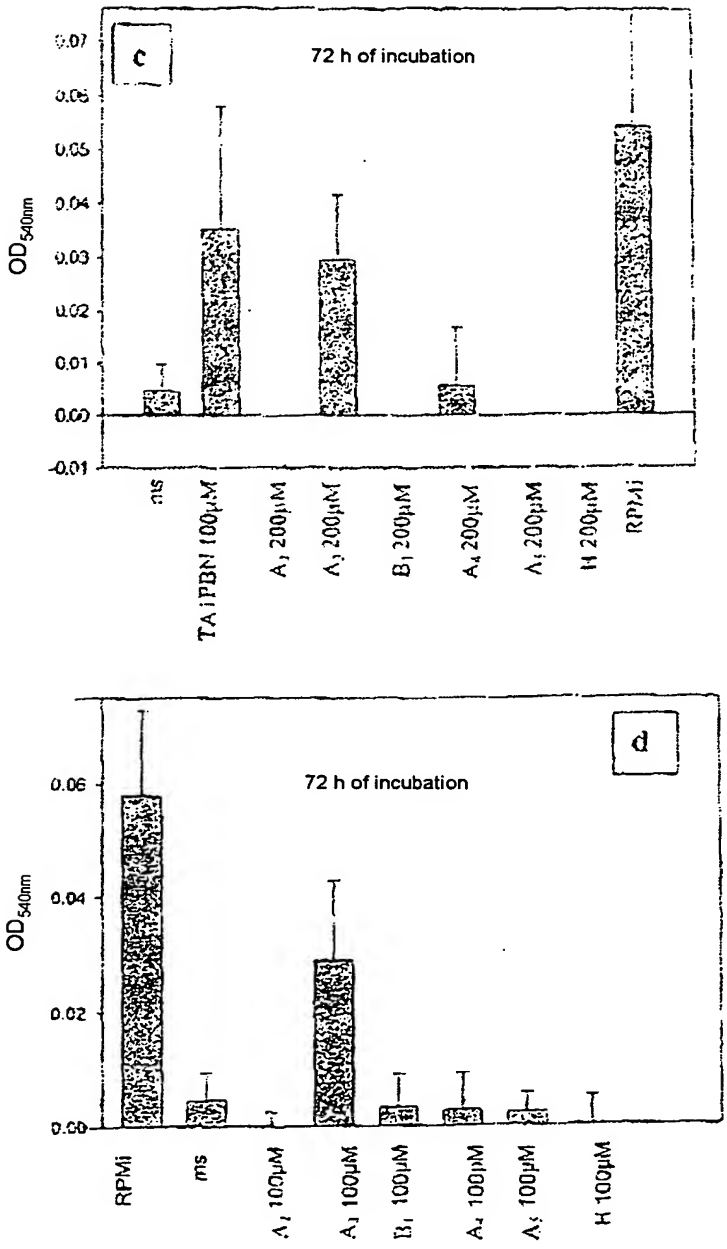
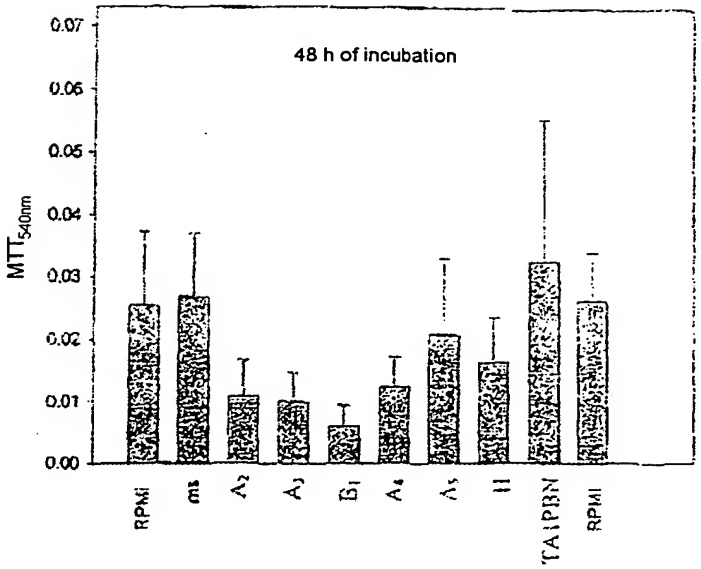


Figures 10a and 10b: Culture of NARP cells in the presence of 100 (a) and 200 µM (b) amphiphilic nitrones after 48 h of incubation



Figures 10c and 10d: Culture of NARP cells in the presence of 100 (d) and 200 µM (c) amphiphilic nitrones after 72 h of incubation

e



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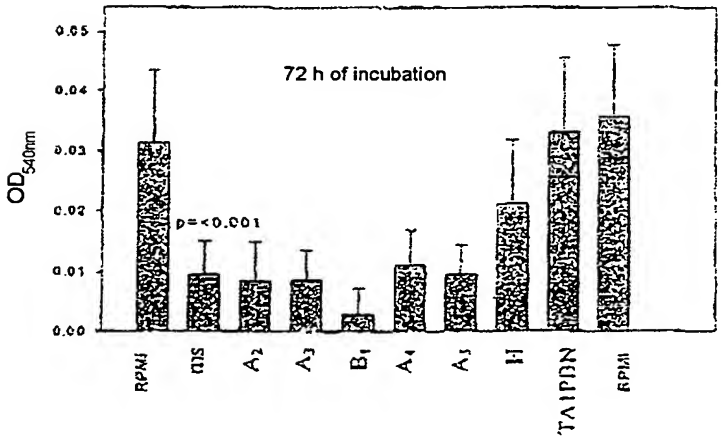

Figures 10e and 10f: Culture of NARP cells in the presence of 50 µM amphiphilic nitrones after 48 h (e) and 72 h (f) of incubation

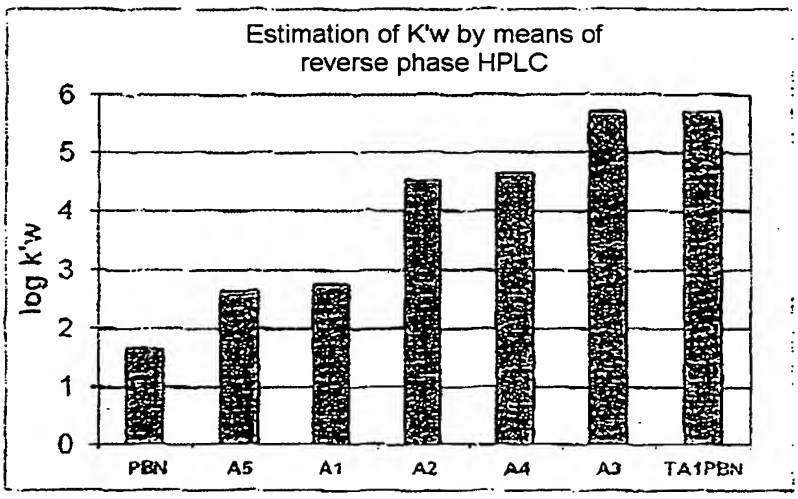

Figure 11: Variation in the hydrophobicity of the lactobionic acid-derived nitrones **A1-A5**.